

CLAIMS

1. A method for detecting a missing or improperly installed fuel cap on a vehicle, comprising:
 - conducting a first leak test that detects a leak in an evaporative emissions system of a vehicle;
 - 5 conducting a refueling test that detects a refueling of said vehicle when said first leak test detects said leak; and
 - activating a fuel cap indicator in said vehicle when said first leak test detects said leak and said refueling test detects said refueling.
2. The method of Claim 1 further comprising:
 - deactivating said fuel cap indicator after a predetermined time period.
3. The method of Claim 2 wherein said predetermined time period is sufficient to allow an occupant of said vehicle to determine a condition of a fuel cap of said vehicle.
4. The method of Claim 2 further comprising:
 - conducting a second leak test;
 - activating said fuel cap indicator when said second leak test detects said leak;
 - 5 activating an engine malfunction indicator in said vehicle when said first and second leak tests consecutively detect said leak; and
 - deactivating said fuel cap indicator after said predetermined time period.
5. The method of Claim 2 wherein said fuel cap indicator remains deactivated when a predetermined number of leak tests consecutively detect said leak.

6. The method of Claim 1 further comprising:
deactivating said fuel cap indicator when an occupant of said vehicle indicates that a fuel cap of said vehicle is properly installed.

7. The method of Claim 2 wherein said fuel cap indicator remains deactivated when an occupant of said vehicle indicates that a fuel cap of said vehicle is properly installed.

8. The method of Claim 6 wherein said occupant activates an actuator on an instrument panel of said vehicle to indicate said fuel cap is properly installed.

9. The method of Claim 1 wherein said fuel cap indicator is one of a visible indicator, an audible indicator, and a haptic indicator.

10. A missing fuel cap detection system, comprising:
a leak test module that conducts a plurality of leak tests to detect a leak in an evaporative emissions system of a vehicle;
a refueling detection module that detects a refueling of said
5 vehicle when said leak test module detects said leak; and
a fuel cap detection module that activates a fuel cap indicator in said vehicle when said leak test module detects said leak and said refueling detection module detects said refueling.

11. The missing fuel cap detection system of Claim 10 wherein said fuel cap detection module deactivates said fuel cap indicator after a predetermined time period.

12. The missing fuel cap detection system of Claim 11 wherein said time period is sufficient to allow an occupant of said vehicle to determine a condition of a fuel cap of said vehicle.

13. The missing fuel cap detection system of Claim 11 wherein said fuel cap detection module activates said fuel cap indicator and said leak test module activates an engine malfunction indicator in said vehicle when two of said plurality of leak tests consecutively detect
5 said leak.

14. The missing fuel cap detection system of Claim 11 wherein said fuel cap indicator remains deactivated when a predetermined number of said plurality of leaks tests consecutively detect said leak.

15. The missing fuel cap detection system of Claim 11 wherein said fuel cap indicator remains deactivated when an occupant of said vehicle indicates that a fuel cap of said vehicle is properly installed.

16. The missing fuel cap detection system of Claim 10 wherein said fuel cap detection module deactivates said fuel cap indicator when an occupant of said vehicle indicates that a fuel cap of said vehicle is properly installed.

17. The missing fuel cap detection system of Claim 16 wherein said occupant activates an actuator on an instrument panel of said vehicle to indicate said fuel cap is properly installed.

18. The missing fuel cap detection system of Claim 10 wherein said fuel cap indicator is one of a visible indicator, an audible indicator, and a haptic indicator.